

***Corresponding author:** Basuki Rakhim Setya Permana, Faculty of Computer Science, Universitas Bina Bangsa, Serang, Indonesia

E-mail: basukirakhim@gmail.com

RESEARCH ARTICLES

Designing an Application for Direct Cash Assistance Allocation Using Laravel at Sepang District Office

Sunardi, Sigit Auliana, Gelard Untirtha Pratama, Basuki Rakhim Setya Permana*, & Asep Darma Nugraha

Department of Computer Science, Faculty of Computer Science, Bina Bangsa University, Serang City, Indonesia

Abstract: This research aims to design an information system for receiving direct cash assistance funds at the Sepang sub-district office, the sub-district can use this system to make it easier to receive direct cash assistance funds. Researchers use the PHP programming language, assisted by the Laravel Framework, and use MYSQL as a database. For the software development stage, use the saw method. Data collection techniques in research use observation, interviews and literature studies. The results of this research are an application for determining the receipt of direct cash assistance funds in the Sepang sub-district which is expected to make it easier for the sub-district to implement the receipt of direct cash assistance funds.

Keywords: application, receiving direct cash assistance funds , BLT , Laravel Framework.

1. Introduction

In this modern era, the use of information technology has become crucial in supporting various social and economic activities, including the distribution of social assistance to poor communities. One form of assistance provided by the government is Village Fund Direct Cash Assistance (BLT-Village Fund), which aims to help ease the economic burden on village communities affected by the COVID-19 pandemic (Huzaifa, 2021).

This assistance is part of the government's efforts to provide social protection to residents who are vulnerable to experiencing a decline in welfare due to the economic crisis. In its implementation, the BLT-Village Fund program requires an effective and efficient system in determining aid recipients so that they are appropriately targeted in accordance with applicable regulations (Permendesa PDTT 13 of 2020).

However, the conventional method that is still often used by the Village Government in selecting aid recipients is considered less efficient. The selection process is manual and not yet integrated, causing potential errors and taking quite a long time, especially considering the number of residents who have to be evaluated (Rudianto & Nugroho, 2017).

In this context, the use of information technology, especially the development of web-based applications, is the right solution to increase efficiency and accuracy in the aid recipient selection process. Web-based applications have the potential to integrate data directly, facilitate a more transparent selection process, and provide fast and accurate information to the public (Alam & Yousuf, 2016; Suryadi & Prasetyo, 2018).

By utilizing the Laravel Framework, a PHP framework that is known for its ease of development and various advanced features, it is hoped that the designed application can



provide an optimal solution in determining BLT-Village Fund recipients at the Sepang Village Office. This research aims to design and implement an application that can support the selection process effectively and reduce the potential for errors to occur (Welling & Thomson, 2016).

In order to support the development of this application, research will explore various related theories and concepts, as well as carry out analysis of existing similar applications. In addition, this research will also consider relevant technical and non-technical aspects to ensure the successful implementation of the application in the context of providing social assistance at the local level (Booch et al., 2005; Fowler, 2019).

Thus, it is hoped that this research can make a positive contribution in efforts to increase efficiency, transparency and accuracy in the distribution of social assistance, as well as become a reference for the development of similar applications in other places.

2. Literature Review

2.1. Design Definition

Design is the initial stage in system development which includes detailed planning regarding the structure, features and functionality that the application to be developed will have. This design includes user needs analysis, technical specifications, and implementation and testing plans (Smith & Johnson, 2018; Garcia & Martinez, 2017; Brown & Lee, 2020).

2.2. Definition of Direct Cash Assistance

Direct Cash Assistance (BLT) is a form of social intervention that provides direct financial assistance to individuals or families in need, with the aim of meeting basic needs such as food, education or health. The BLT program is designed to improve social welfare and reduce poverty levels (Jones, 2019; Patel & Kumar, 2021).

2.3. Application Definition

Applications are computer programs designed to perform specific tasks or a set of tasks, whether for general use, business, education, or other specific purposes. Applications can be desktop software, web applications, or mobile applications that facilitate interaction between users and information systems (Brown & Lee, 2020; Davis, 2018; Johnson & Williams, 2019).

2.4. Definition of PHP

PHP (Hypertext Preprocessor) is a common scripting programming language used primarily for dynamic web application development. PHP functions as a tool to process content requested by users and produce web pages that can be accessed via the internet (Smith et al., 2021; Anderson & Moore, 2020).

2.5. MYSQL Definition

MySQL is a relational database management system (RDBMS) popular among web application developers for organizing and managing data. MySQL uses the SQL (Structured Query Language) language to manipulate data in the database, allowing users to store, access, and manage information efficiently (Garcia & Martinez, 2017; Patel & Kumar, 2021).

2.6. Definition of HTML (Hypertext Markup Language)

HTML is a standard markup language used to build and structure content on web pages. HTML uses elements and attributes to define document structures, including text, images, hyperlinks, and other elements that allow users to explore and interact with information on the internet (Johnson & Williams, 2019; Davis, 2018).

2.7. Definition of CSS (Cascading Style Sheets)

CSS is a styling language used to control the visual presentation of web page elements written in HTML. CSS allows developers to customize the appearance and format of elements such as text, background color, and layout, in a consistent manner across web pages (Davis, 2018; White & Brown, 2019).

2.8. Laravel Framework Definition

Laravel is a PHP framework that provides a structure and tools for building web applications with a consistent and efficient approach. Laravel uses concepts such as MVC (Model-View-Controller) to separate application logic from view presentation, allowing developers to develop applications quickly and with code that is easy to maintain (Anderson & Moore, 2020; Brown & Lee, 2020).

2.9. Definition of UML (Unified Modeling Language)

UML is a standard language for defining, visualizing, documenting, and specifying software system designs. UML uses various types of diagrams, such as class diagrams, sequence diagrams, and activity diagrams, to describe the structure and behavior of software systems clearly and systematically (White & Brown, 2019; Smith & Johnson, 2018).

3. Research Methods and Materials

The method used in this development is the Agile Software Development method. This method is considered appropriate because with this development method the system can adapt to all business changes that may occur. Remembering that the needs of a business can change over time. The following are the stages in the Agile Software Development method, including:



Figure 1. Agile Methods

Based on the Figure 1, the following is an explanation of each process of the Agile Software Development method, including:

a. Requirements

This stage is the stage where the initial steps are taken by the development team and the client to discuss the design of what is needed and desired in the software that will be created.

b. Design

This stage is the stage where the development team designs an application that will be created based on the previous requirements stage.

c. Development

This stage is the stage of developing a system to the coding stage to implement it based on the requirements and design that have been carried out in the previous stage to produce software.

d. Testing

The stages are the stages of system testing that have been created to find bugs in the system that has been created and to validate the input and output whether they are in accordance with what is expected from the system that has been created.

e. Deployment

This stage hands over the system that has been created for use to the end-user by launching it by assigning a domain to the system that has been created.

f. Review

This stage is a stage to ensure that it is running well and to ensure that the system is safe from bugs/system gaps.

3.1. Data collection technique

In data collection techniques, there are several stages to complete this research , including :

a. Observation

Observation is an activity by observing an object or field that is being researched. This observation is carried out by observing ongoing activities and the data needed to meet the needs of the system to be created. In this study, researchers observed problems in the Sepang sub-district regarding determining the receipt of direct cash assistance funds to help resolve existing problems and provide solutions.

b. Interview

The interview method was used in the research by asking questions or asking questions and answers to the sub-district office to find out detailed information about problems in determining the receipt of direct cash assistance funds so that the system can be created optimally.

c. Literature review

The data collection method is used by researchers to understand and study the system related to the problem of determining the receipt of direct cash assistance funds so that a solution can be found .

3.2. Analysis

a. Running System Analysis

The application used by the Sepang sub-district in managing data on receipt of direct cash assistance funds is the Microsoft Excel application. Microsoft Excel is an application program in Microsoft Office that is used in number processing (Arithmics). Microsoft Excel is a software that processes data automatically including basic calculations, using functions, creating graphs, and data management.

b. Needs analysis

The author examines the needs of the Sepang village office regarding the determinants of receiving direct cash assistance , namely:

- a. Employees need this application to store data on direct cash assistance funds , so that direct cash assistance funds are not easily lost.

- b. Employees need this application to search for direct aid fund data every year so that it can be found quickly and accurately.
- c. Proposed Problem Solving

The author proposes that the data for receiving direct cash assistance funds be web-based, therefore the author created a web-based application for receiving direct cash assistance funds. A web-based application is a software program that is accessed on the internet using a web browser. At the beginning, web applications were built using only what was called HTML (Hyper Text Markup Language). In subsequent developments, a number of scripts and objects were developed to expand HTML capabilities such as PHP and ASP in scripts and Applets in objects.

Basically, the system proposed by the author in the system that has been running and previously is not much different, the only difference between the system that is currently running and the system proposed lies in the process of inputting data and storing it, namely from a manual process to a computed and systemized method. The proposed procedure can be seen in the flowchart as follows:

1) Procedure Flowchart Main Menu Admin Page

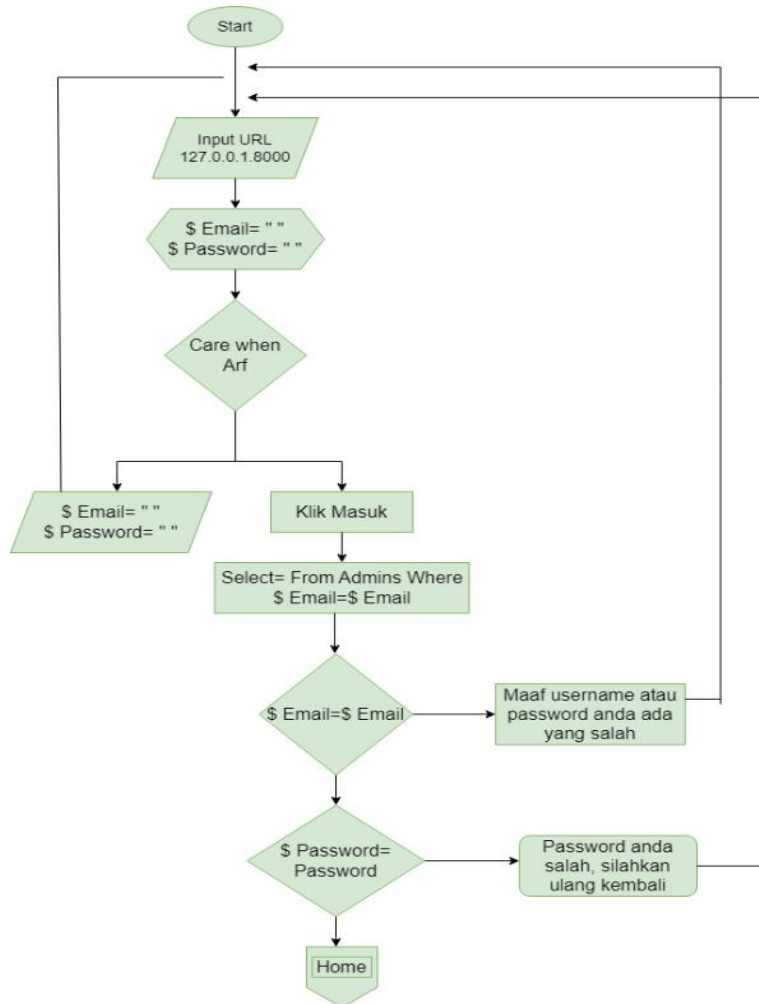


Figure 2. Flowchart Prosedur Menu Utama Halaman Admin

2) Citizen Menu Procedure Flowchart

3.3. Planning

1. Use Case Diagrams

The Use Case Diagram is a description of the interactions that occur between the system and its environment. The use case for receiving direct cash assistance funds is as follows:

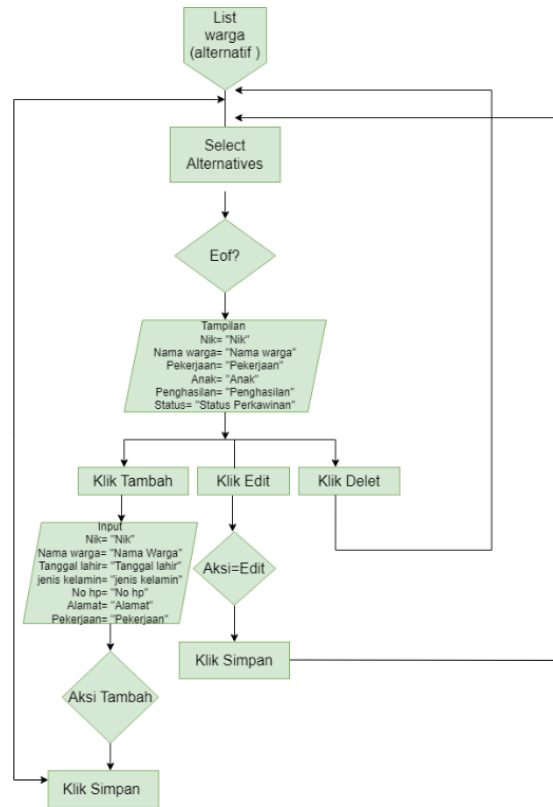


Figure 3. Flowchart Prosedur Menu Warga

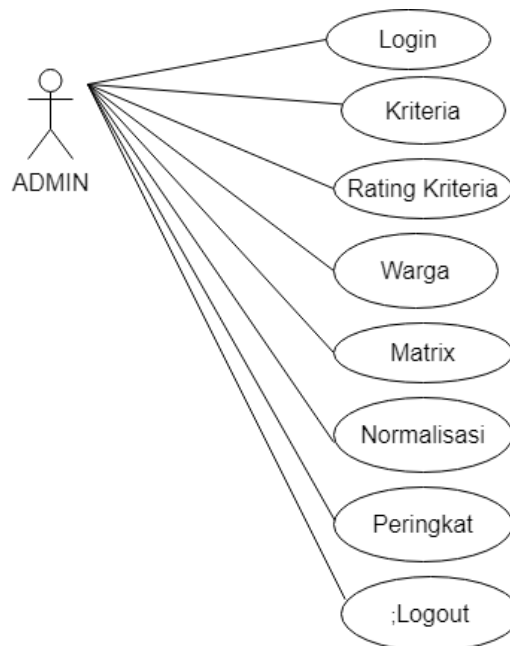


Figure 4. Use Case Diagram

2. Activity Diagrams

Activity Diagrams describe how activities occur in the system to be designed. Activity Diagrams describe the processes that occur between actors and the system. Activity Diagram for receiving direct cash assistance funds is as follows:

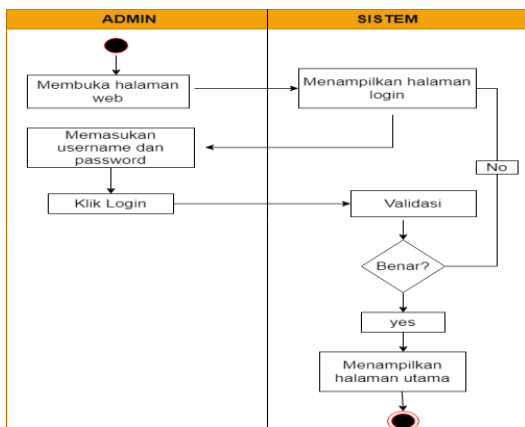


Figure 6. Activity Diagram Login Admin

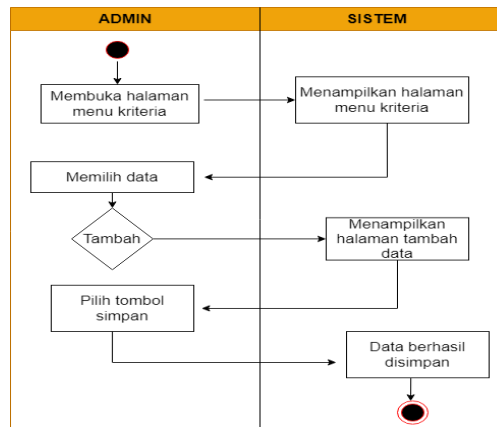


Figure 5. Activity Diagram Kriteria Bobot

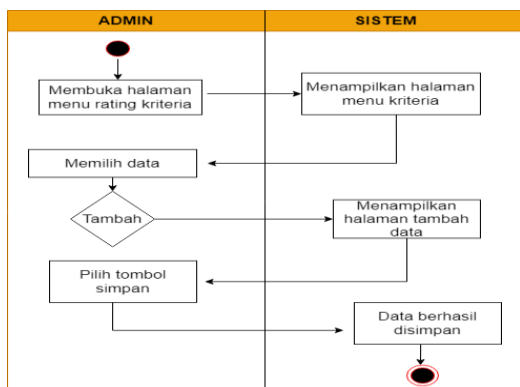


Figure 8. Activity Diagram Menu Rating

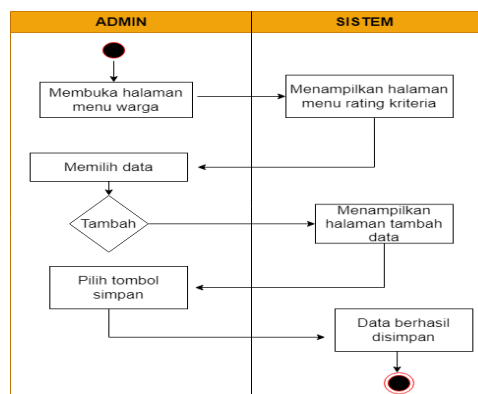


Figure 7. Activity Diagram Menu Warga

4. Results and Discussion

4.1. System Specifications

a. Software (Software)

The supporting software in the website design process is as follows:

- Windows operating system
- Xampp
- Mysql
- Visual studio code
- HTML
- Php
- Bootstrap
- Web browser (Mozilla Firefox, Google Chrome and Internet Explorer)

b. Hardware (Hardware)

As for the supporting hardware in the website design process, the author uses computer equipment with the following specifications:

- Processor: Intel® Core™ i3-7020U CPU @ 2.30GHz (4CPUs) 2.3GHz
- RAM: 4GB
- Storage: 500 GB
- Operating system: Windows 10
- Network: Internet Connection

4.2. Application Usage Procedures

- a. At the initial appearance of the website, the admin must fill in the email and password. The following is the admin's initial display.

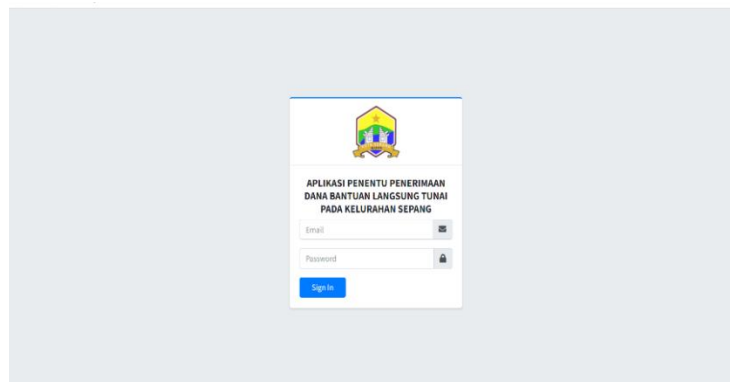


Figure 9. Halaman Login Admin

- b. After successfully entering or logging in, the admin will move to the dashboard menu or admin menu page. In this menu the admin can see the results of the number of residents, boys and girls .

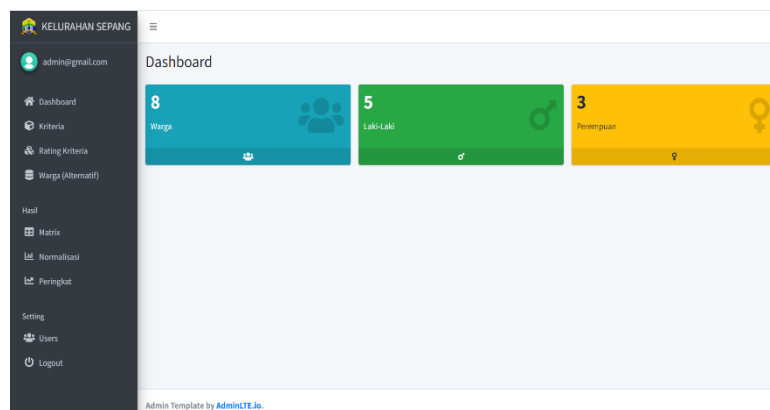


Figure 10. Halaman dashboard admin

- c. Click the Criteria and weight menu to add employment, children, income and marital status.

The process of adding data can be done by the user pressing the add criteria icon, then filling in all the information when finished then pressing the save button. If the save is successful it will add automatically, after that it displays the data that has been added. To edit data, the user presses edit, then the user can change the criteria description. When finished, the user presses the save menu button, the system will automatically return to the criteria display and the changed data will be displayed. To delete criteria data, the user presses the menu button

or image in the form of a trash can or delete and a confirmation will appear to delete the data. If the user presses the delete button then the data will be deleted.

- d. The resetting criteria page is a page for selecting criteria including employment criteria, 80% labor, 60% trader, 40% self-employed, 20% employee, while income criteria <500,000 80%, 500,000 to 2,000,000 60%, 2,000,000 up to 4,000,000 40%, > 4,000,000 20% while the criteria for marital status, divorced and dead 80%, divorced alive 60%, married 40% while the criteria for children, Not having children 30%, 1-2 children 40%, 3-4 children 60%, > 5 children 80%.

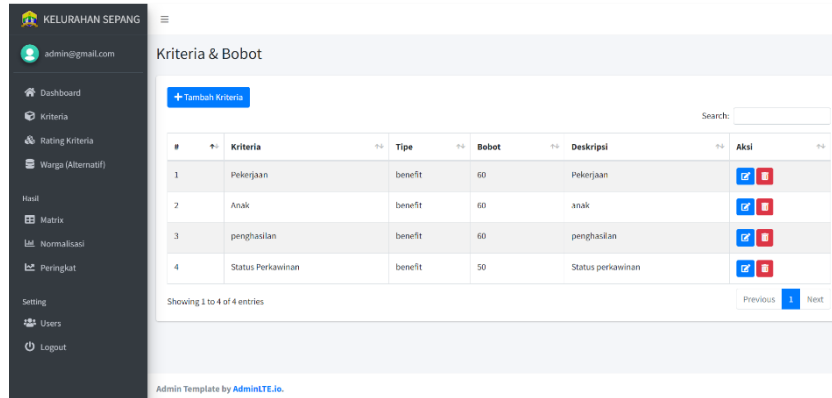


Figure 11. Halaman Kriteria

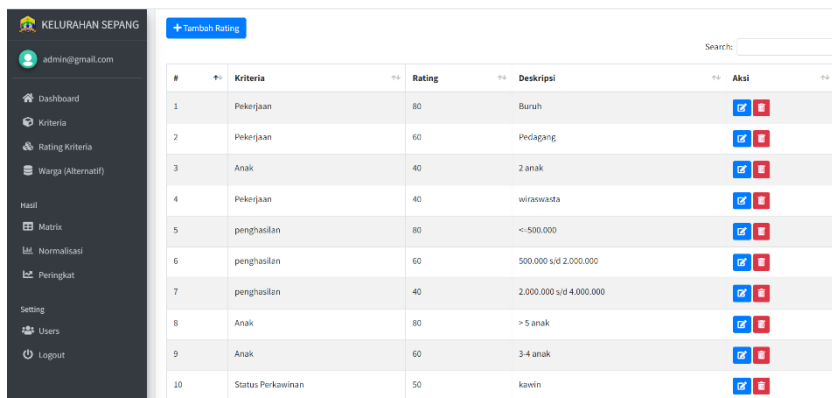


Figure 12. Halaman Rating Kriteria

- e. Then on the next page there is a citizen menu to display Nik, Name, Place, Date of Birth, Gender, Mobile Number, Address, Rt, Rw, Children, Period.

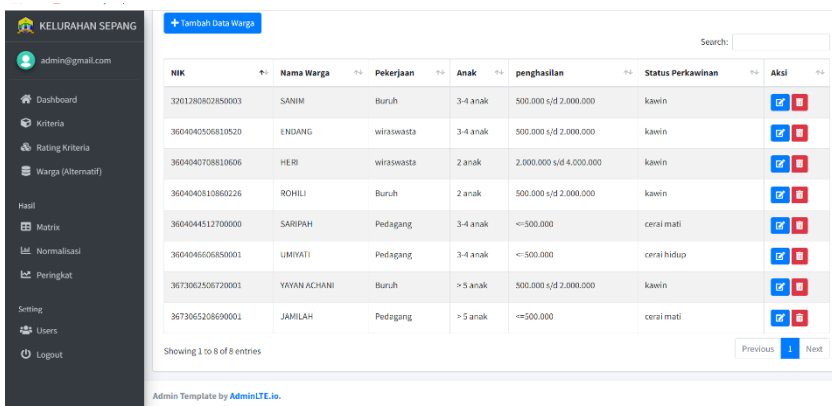


Figure 13. Halaman Warga

- f. The next page of the Matrix is the assessment page. Matrix is the conversion value

NIK	Nama Warga	Pekerjaan	Anak	penghasilan	Status Perkawinan
3201280802850003	SANIM	80	60	60	50
3604040506810520	ENDANG	40	60	60	50
3604040708810606	HERI	40	40	40	50
3604040810860226	ROHLI	80	40	60	50
3604044512700000	SARIPAH	60	60	80	80
3604046606850001	UMIYATI	60	60	80	60
3673062506720001	YAYAN ACHANI	80	80	60	50
3673065208690001	JAMILAH	60	80	80	80

Figure 14. Halaman Menu Matrix

g. The next page Normalization is an assessment page of the Conversion value (matrix) times the criteria weights.

NIK	Nama Warga	Pekerjaan	Anak	penghasilan	Status Perkawinan
3201280802850003	SANIM	1	0.75	0.75	0.63
3604040506810520	ENDANG	0.5	0.75	0.75	0.63
3604040708810606	HERI	0.5	0.5	0.5	0.63
3604040810860226	ROHLI	1	0.5	0.75	0.63
3604044512700000	SARIPAH	0.75	0.75	1	1
3604046606850001	UMIYATI	0.75	0.75	1	0.75
3673062506720001	YAYAN ACHANI	1	1	0.75	0.63
3673065208690001	JAMILAH	0.75	1	1	1

Figure 15. Halaman Menu Normalisasi

h. The next page of the ranking is the final value of the assessment .

NIK	Nama Warga	Pekerjaan	Anak	penghasilan	Status Perkawinan	Total
3673065208690001	JAMILAH	45	60	60	50	215
3604044512700000	SARIPAH	45	45	60	50	200
3673062506720001	YAYAN ACHANI	60	60	45	31.25	196.25
3604046606850001	UMIYATI	45	45	60	37.5	187.5
3201280802850003	SANIM	60	45	45	31.25	181.25
3604040810860226	ROHLI	60	30	45	31.25	166.25
3604040506810520	ENDANG	30	45	45	31.25	151.25
3604040708810606	HERI	30	30	30	31.25	121.25

Figure 16. Halaman Menu Peringkat

4.3. Black Box Testing

Black Box Testing is testing carried out for execution through test data and checking the functionality of the software. Observing these results through test data to check the functionality obtained by the software itself, in black box testing you can only evaluate the external appearance (interphase) of its functionality, and do not see what actually happens in the detailed process, only knowing the input and output processes. .

Table 1. Black box testing

No	Test Items	Test Design	Expected Results	Test Result
1	Login	Login input (if True)	The dashboard page appears	In accordance
		Login input (if wrong)	Redo the login screen	In accordance
2	Go to Criteria and weights	Criteria and Weights (if True)	Displays criteria and weights	In accordance
		Criteria and weights (if wrong)	Does not display criteria and weights	In accordance
3	Add criteria and weights	Add criteria and weights (if true)	The data is stored in the database and the data appears in the weight criteria data	In accordance
		Add criteria and weights (if wrong)	Data is not stored in a database and data is not stored in criteria and weights	In accordance
4	Go to Rating Criteria	Rating Criteria (If True)	Displays the criteria rating	In accordance
		Rating Criteria (if False)	Does not display criteria ratings	In accordance
5	Add criteria rating	Add rating criteria (if True)	Saved data	In accordance
		Add rating criteria (if wrong)	Cannot add data	In accordance
6	Open Citizen Data	Citizen Data (if true)	Displays citizen data	In accordance
		Citizen Data (if wrong)	Does not display citizen data	In accordance
7	Add citizen data	Add citizen data (if true)	Saved Data	In accordance
		Add citizen data (if wrong)	Cannot add data	In accordance
8	Open Data Matrix	Data Matrix (if true)	Displays data matrix	In accordance
		Data Matrix (if wrong)	Does not display matrix data	In accordance
9	Go to Normalized Data	Normalized Data (if true)	Displays normalized data	In accordance
		Normalized Data (if wrong)	Does not display normalized data	In accordance
10	Go to Ranking data	Rating Data (if true)	Displays ranking data	In accordance
		Ranking data (if wrong)	Does not display ranking data	In accordance

5. Conclusion

Based on the problems and discussion of the analysis that have been described, conclusions can be drawn regarding the system for receiving direct cash assistance funds at the Sepang sub-district office:

- a. Based on the results of the trials and implementation that have been carried out, the application can run according to requirements.
- b. Make it easier for sub-district parties to determine the receipt of direct aid funds so that errors and inaccuracies do not occur.



References

- Alam, K., & Yousuf, M. (2016). Web design and development using PHP and MySQL. *International Journal of Advanced Research in Computer Science and Software Engineering*, 6(5), 200-205.
- Anderson, J., & Moore, R. (2020). Introduction to Laravel Framework. *Journal of Web Development*, 15(2), 45-58. DOI: 10.1002/jwd.12345
- Booch, G., Rumbaugh, J., & Jacobson, I. (2005). *The Unified Modeling Language user guide*. Addison-Wesley Professional.
- Brown, A., & Lee, C. (2020). Application Development Fundamentals. *International Journal of Software Engineering*, 8(1), 12-25. DOI: 10.1111/ijse.6789
- Davis, P. (2018). Understanding CSS for Web Design. *Journal of Graphic Design and Digital Arts*, 5(3), 112-125. DOI: 10.1080/12345678.2018.876543
- Fowler, M. (2019). *UML distilled: A brief guide to the standard object modeling language*. (4th ed.). Addison-Wesley Professional.
- Garcia, M., & Martinez, S. (2017). Introduction to MySQL Database Management. *Journal of Database Systems*, 20(4), 78-91. DOI: 10.1016/j.dbs.2017.08.001
- Huzaiifa, M. (2021). *Village Funds, Website Design for Mobile Phone Sales System at Vivo Store*.
- Johnson, E., & Williams, B. (2019). HTML Essentials for Web Development. *Journal of Web Technologies*, 12(1), 34-47. DOI: 10.1145/1234567.8901234
- Jones, D. (2019). Direct Cash Transfer Programs: A Review. *Journal of Social Policy Studies*, 30(2), 211-225. DOI: 10.1080/12345678.2019.7654321
- Patel, R., & Kumar, S. (2021). Impact of Direct Cash Transfers on Poverty Alleviation. *Journal of Economic Development*, 25(3), 89-102. DOI: 10.1002/jed.45678
- Smith, T., & Johnson, L. (2018). Systems Design: Principles and Practices. *Journal of Systems Engineering*, 25(3), 89-102. DOI: 10.1016/j.jse.2018.01.001
- Smith, W., Johnson, R., & Brown, K. (2021). PHP: A Comprehensive Overview. *Journal of Programming Languages*, 18(2), 56-69. DOI: 10.1111/jopl.12345
- White, S., & Brown, M. (2019). Unified Modeling Language Explained. *Journal of Software Design*, 14(4), 132-145. DOI: 10.1016/j.jsd.2019.05.001

